

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY


REGION III

841 Chestnut Building  
Philadelphia, Pennsylvania 19107

ORIGINAL

**SUBJECT:** Exemption from the Six Month Statutory Limit  
for CERCLA Removal Action at the Shaffer  
Equipment Co. Site, Minden, West Virginia

**DATE:** AUG 15 1988

**FROM:** James M. Seif   
Regional Administrator (9RA00)



**TO:** Dr. J. Winston Porter, Assistant Administrator  
for Solid Waste and Emergency Response (WH562A)

Pursuant to the April 16, 1984, Delegation 14-1-A, I have approved  
the exemption for the six month ceiling for this site.

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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841 Chestnut Building  
Philadelphia, Pennsylvania 19107

ORIGINAL

SUBJECT: Continuation of Removal Activities at the  
Shaffer Equipment Site, Minden, West Virginia

DATE AUG 15 1985

FROM: Robert E. Caron, On-Scene Coordinator  
Emergency Response Section (3HW22)

TO: James M. Seif  
Regional Administrator (3RA00)

Stephen R. Wassersug, Director  
Hazardous Waste Management Division (3HW00)

Issue

Continued immediate response actions are estimated to exceed the six month statutory limit and actions to control and stabilize the site cannot be continued unless an exemption to Section 104(c) of the Comprehensive Environmental Response Compensation and Liability Act of 1980 (CERCLA) is granted. The six month CERCLA limit for this site is June 26, 1985. A \$1,000,000 exemption request for this site is being submitted under separate cover.

Statutory Criteria

Section 104(c) of CERCLA limits Federal Emergency Response to six months unless three basic criteria are met:

1. Continued response actions are immediately required to mitigate an emergency.
2. There is an immediate risk to public health and the environment.
3. Such assistance will not otherwise be provided on a timely basis.

Background

The Environmental Protection Agency (EPA), Region III, initiated emergency action on December 28, 1984, to stabilize and otherwise abate an immediate and significant risk of harm to human life and the environment posed by the presence of Polychlorinated Biphenyls (PCB) at extremely high levels in both electrical equipment and soils onsite. This action was approved in an immediate removal action memorandum signed by the Regional Administrator on December 27, 1984. (Attached). On February 15, 1985 an additional funding request was approved to continue operations at the site. Approximately \$720,000 has been expended from the \$800,000 total project ceiling. Work performed to date includes the following:

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1. Measuring and sampling of transformers, capacitors, drums, soils and water both on and offsite.
2. Establishment of initial measures to contain a severe offsite migration problem.
3. Remove, transport and dispose of PCB containing transformers, capacitors and drums.
4. Excavation and staging of an estimated 4,000 cubic yards of contaminated soils.
5. Backfill and regrade of excavated site.

The OSC has determined that removal and disposal of all PCB containing transformers, capacitors, drums and contaminated soils is the most appropriate action to eliminate the direct contact threat posed by the presence of high levels of PCB contamination in soils onsite. Initial efforts have halted PCB migration offsite into the nearby Arbuckle Creek. This offsite migration of PCB has been shown to be responsible for the presence of PCB in residential backyards as far as one mile downstream, carried there by past flood events and resultant sediment deposition. Presently, the contaminated soils are staged in a temporary clay lined holding cell located in the flood plain of Arbuckle Creek. Site characteristics and property ownership dictated this soil staging area.

Past experience with conventional disposal practices (landfill) for immediate removal projects have demonstrated problems, including:

1. Inaccessability to nearby landfills to accept hazardous waste material in a timely fashion.
2. Inaccessability to nearby landfills has forced EPA, Region III to look at landfilling options as far west as California and as far south as Alabama. Transportation costs are prohibitively expensive in such cases.
3. Creation of a long term responsibility at these current landfills where EPA can be considered a generator of the hazardous waste material.

Therefore, EPA must consider other options/technologies other than convential landfilling that may not be cost effective from a short term perspective, but are a viable alternative when evaluating the long term disposal options. Site specific detoxifications are available and must be evaluated accordingly. There are also several advantages to consider when utilizing onsite specific treatment, detoxification or destruction technologies, including:

1. Promote RCRA (i.e. promote resource conservation and recovery).
2. Minimize use of valuable offsite land (resources).
3. Eliminate transportation costs to disposal facilities.
4. Eliminate public threat when transporting hazardous materials.
5. Eliminate EPA liability as a generator should landfill fail.
6. Promote innovative state-of-the-art technology.

The OSC reviewed fifteen different alternative technologies in terms of feasibility, availability and cost effectiveness. Contacts were made with industrial, consultant and government entities to seek the most up-to-date information. The OSC utilized the Environmental Response Team, Headquarters OSWER and the TAT contractor to develop and review a report summarizing the technology review. This report entitled "PCB Contaminated Soil Treatment/Disposal Alternatives" is attached to this request.

The following technologies were reviewed:

1. Mobile Incineration with a Rotary Kiln
2. Microwave Plasma Detoxification
3. High Temperature Fluid Wall
4. Solvent Extraction (onsite)
5. Solvent Extraction (in-situ)
6. Decontamination of soils using Franklin Solvent
7. Solvent Extraction using the Accurex Process
8. Slurry Wall
9. Grouting
10. Microencapsulation
11. Macroencapsulation
12. Fixation/Stabilization
13. Hazardous Waste Landfill (onsite)
14. Hazardous Waste Landfill (offsite)
15. Incineration offsite.

Due to site conditions, the nature of the contaminant and the location of the site (flood plain), many of the onsite alternatives are not appropriate since confidence in the integrity of structures and or stabilization is questionable. Since the site is unstable, that is, flooding occurs regularly, it is necessary to remove the contaminant or, at a minimum, reduce the level of the contaminant. With this in mind, review by both the OSC and the above mentioned organizations have identified only three disposal options that are feasible, cost effective, environmentally sound and immediately available. These three options are:

1. Mobile incineration with a Rotary Kiln (onsite).
2. Solvent Extraction (onsite).
3. Hazardous Waste Landfill (offsite).

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It should be noted that many of the other alternatives considered appear attractive; however, in most cases the processes are in design or demonstration phases of development. Use onsite at this time would require large capital outlay and would not be timely. Attached is a two page comparison summary sheet which lists all the considered alternatives.

Each of the three identified viable alternatives were evaluated as follows:

1. Technical Feasibility
2. Cost
3. Time to complete project
4. Environmental Effectiveness
5. Commercial availability
6. Institutional factors (i.e. permits)
7. Material handling factors
8. Public acceptability
9. Monitoring requirements (real time - long term)
10. Non site-specific application.

Costs and time scales for each alternative are presented below:

Alternative #1 - Offsite Hazardous Waste Landfill

This option, as described in the TSCA PCB regulations, requires a proper PCB permitted disposal facility. At present, only two facilities are available within a reasonable distance from this site. These are the Chemical Waste Management Landfill in Emelle, Alabama, and the SCA Landfill in Model City, New York. Of the two landfills, the Emelle location is more desirable since transportation costs are considerably less. (See attached report for more detailed analysis.)

Costs associated with this option are as follows: (total 4,000 cubic yards)

|                         |                                   |
|-------------------------|-----------------------------------|
| 1. Total cost at fill   | \$680,400 (\$162/ton plus 5% tax) |
| 2. Transportation Cost  | 525,000 (700 miles @ \$3/mile)    |
| 3. Labor (loading etc.) | 80,000 (approx. 14 days)          |
| 4. TAT/USCG/AST         | 20,000                            |
| 5. EPA                  | 5,000                             |
| Total Estimated Costs   | <u>\$1,310,400.00</u>             |

Time to completion is estimated at 14 days upon approval at the fill.

Alternative #2 - Mobile Incineration With a Rotary Kiln (onsite)

This option requires a properly permitted mobile unit. At present there are only two units with the potential of being approved in a timely manner. These are the EPA mobile incinerator, presently tied up in Missouri, or a privately owned unit operated by ENSCO. The ENSCO unit is presently available. Costs associated with this option are as follows.

|  |                       |
|--|-----------------------|
| 1. Total Cost of incineration<br>(\$ .20 per pound - 60 to 90 days at 6,000 lb/hour) | \$1,600,000.00        |
| 2. Labor (material handling)<br>(\$2,000/day)  | 180,000.00            |
| 3. TAT - USCG/AST  | 20,000.00             |
| 4. EPA   | 10,000.00             |
| Total Estimated Costs  | <u>\$1,810,000.00</u> |

Time to completion is estimated at 60 to 90 days upon permit approvals from both EPA and the State of West Virginia.

Alternative #3 - Solvent Extraction

This option requires a TSCA approval, which has already been granted by headquarters. (See attached letter dated July 3, 1985 from EPA Hqtrs.) Studies by both industry and EPA indicate that this option is effective both technically and monetarily. PCB removal efficiency has been demonstrated in excess of 95% utilizing the proposed technique. (See attached report.) Costs associated with this option are as follows:

This will be a two phased project:

1. A full scale field demonstration that proves conclusively the effectiveness of this technique.

|      |            |
|------|------------|
| Cost | \$ 100,000 |
|------|------------|

2. After satisfactory activities under Phase I the following is a breakdown of items and cost associated with the total remaining activities.

Cost

|   |                    |
|---|--------------------|
| 1. Total Treatment/Extraction Costs<br>(includes labor and handling of soils and solvent recycle) | \$1,000,000        |
| 2. Solvent Costs (MEOH and Freon)   | 300,000            |
| 3. Incineration of Recovered Sludge<br>(10,000 gallons @ \$10.00/gallon offsite)                  | 100,000            |
| 4. TAT - USCB/AST   | 20,000             |
| 5. EPA  | 10,000             |
| Total Estimated Costs of Phase I and II   | <u>\$1,530,000</u> |

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Total time to complete project is 60-90 days. The system is ready now pending approval of funding.

### Conclusions

The investigation into alternative disposal techniques was prompted by the problems surrounding the landfilling of hazardous waste, as described on page three.

Onsite incineration presents problems in both approval requirements and public acceptability. Technically it is the most sound option, since complete destruction is achieved. However, public acceptability is a problem. The OSC requested an opinion from the State of West Virginia regarding the use of this option. The State is not in favor for two reasons: public opinion and the physical location of this site. The site is located in a valley surrounded by three large ridges. Air pollution, if it occurred, would concentrate in the valley area placing the population at risk.

Onsite solvent extraction using a closed system has several benefits, including easier achievement of public acceptability. All required approvals are easily secured and in fact have already been issued. PCB recoveries are in excess of 95%. The proposed system design will achieve a PCB recovery which will result in remaining PCB concentrations in the range of 0-25 ppm in extracted soils. A complete outline and analysis of this system is attached. A flow chart and schematic of the system is also included.

A \$1,000,000 Exemption Request will be submitted under separate cover. The OSC estimates that at least \$1,530,000 in additional funds will be required, raising the total project ceiling to \$2,330,000.

### Proposed Actions

Utilizing new onsite treatment technologies, the proposed action will involve:

1. Demonstration onsite of the soil extraction system to include environmental analysis. This demonstration will be designed to illustrate the effectiveness of the PCB extraction and to identify any environmental impact which might occur as a result of the process.
2. Onsite treatment of the estimated 4,000 cubic yards of contaminated soil utilizing the soil solvent extraction technology which will result in an estimated 10,000 gallons of concentrated PCB sludge.
3. Either offsite fixed facility incineration of the PCB Sludge or onsite destruction/detoxification. This onsite detoxification proposal will be dependent upon the proper approval of the proposed molten salt detoxification equipment by EPA Headquarters TSCA personnel.

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The manner in which the Shaffer Equipment Company site meets the prescribed criteria for the six month exemption is as follows:

1. Continued response actions are immediately required to mitigate an emergency.

An estimated 2,000 people live downstream within one mile of the site. At present, due to geologic and property ownership factors, the 4,000 cubic yards of contaminated soil is located in the flood plain of Arbuckle Creek, approximately 50 yards from the stream banks. This stream commonly flows at an estimated 3,000 gallons per minute. An analysis of past flood history indicates that Arbuckle Creek can flood on the average of three times per year. Geologically, the stream and the watershed are surrounded on three sides by mountain ridges which commonly result in flash flooding. A serious flood event would involve the Shaffer Equipment Company property and would result in the destruction of the integrity of the holding cell and the resultant carry out of contaminated soils downstream into the residential area. In fact, past history indicates that this has already occurred since PCB has been found in residential backyards as high as 17 PPM.

2. There is an immediate risk to public health and the environment.

The Centers for Disease Control (CDC) has already certified that the high levels encountered at the site present an imminent and significant public health threat. This highly contaminated soil still remains onsite. As discussed in item 1, a flood event could result in the spread of this contaminated soil directly toward and into the residential area.

3. Assistance will not otherwise be provided on a timely basis.

The responsible parties have declined to undertake corrective actions at this site due to financial inability to do so. The CERCLA enforcement section has spent considerable effort investigating other possible responsible parties. Other than a second property owner who owns a small portion of this site, no other viable responsible parties have been located. The second property owner has declined to take action since it owns only a small portion of the affected area.

The State of West Virginia does not have the necessary resources to handle a site of this magnitude.

The Shaffer Equipment Company site is not presently on the National Priorities List. Region III SISS personnel are presently scoring this site for possible inclusion on the NPL.



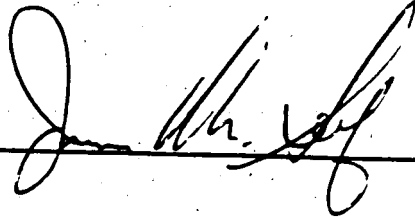
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Recommendations

Based on the information contained herein, I recommend that you approve an exemption from the six month limit to allow continued removal activities at the Shaffer Equipment Company Site.

You may indicate your approval or disapproval by signing below. Due to the immediacy of this removal action, I would appreciate your rapid consideration of this proposal.

APPROVAL



DATE

8/14/85

DISAPPROVAL

DATE

100240